achievable with the x-ray anode according to the invention would be even better, due to the improved heat dissipation.

IN THE CLAIMS

Please cancel claims 1 - 16 without prejudice or disclaimer:

Please enter the following new claims for consideration by the Examiner:

---17. An x-ray anode for microfocus sources comprising:

a diamond window having a thickness in a range of 300 μm to 2000 μm;

an anode material being located on said diamond window.

18. The x-ray anode in accordance with claim 17, wherein said diamond window comprises a polychrystalline diamond window.

19. The x-ray anode in accordance with claim 17, wherein said diamond window is a monocrystal.

20. The x-ray anode in accordance with claim 17, wherein said anode material comprises at least one of a metal, an alloy, and a plurality of layers of metal.

21. The x-ray anode in accordance with claim 17, wherein said anode material has a thickness between 1 μm and 25 μm.

22. The x-ray anode in accordance with claim 17, wherein said anode material has a thickness between 3 μm and 12 μm.

23. The x-ray anode in accordance with claim 17, wherein said anode material has a thickness of 6 μm.

24. The x-ray anode in accordance with claim 17, wherein said anode material at least partially covers said diamond window

25. The x-ray anode in accordance with claim 17, wherein said anode material completely covers a surface of said diamond window.

26. The x-ray anode in accordance with claim 17, wherein said anode material only partially covers a surface of said window.

27. The x-ray anode in accordance with claim 17, further comprising an intermediate layer positioned between said anode material and said diamond window.

28. The x-ray anode in accordance with claim 27, wherein said intermediate layer comprises an adhesion-promoting layer.

29. The x-ray anode in accordance with claim 27, wherein said intermediate layer comprises a radiation filter.

30. The x-ray anode in accordance with claim 17, further comprising a temperature sensor.

31. The x-ray anode in accordance with claim 17, wherein said diamond window is structured and arranged as a temperature sensor.

32. The x-ray anode in accordance with claim 17, wherein said x-ray anode is structured and arranged for use in an x-ray microscopes.

33. The x-ray anode in accordance with claim 17, wherein said x-ray anode is

structured and arranged for use in an x-ray unit.

34. The x-ray anode in accordance with claim 17, wherein said anode material comprises tungsten.

35. The x-ray anode in accordance with claim 17, wherein said anode material is located on said diamond window by physical vapor deposition.

36. The x-ray anode in accordance with claim 17, wherein said diamond layer is formed on an auxiliary substrate by chemical vapor deposition.

37. An x-ray anode formed by a process comprising:

locating an anode material on a diamond window having a thickness in a range of 300 μm to 2000 μm.

38. The x-ray anode in accordance with claim 37, wherein said anode material is located on said diamond window by physical vapor deposition.

39. The x-ray anode in accordance with claim 37, wherein, before the anode material is located on said diamond window, said process further comprises:

forming said diamond window by depositing a polycrystalline diamond layer onto an auxiliary substrate; and

removing the auxiliary substrate from the diamond window.

40. The x-ray anode in accordance with claim 39, wherein said polycrystalline diamond layer is deposited on said auxiliary substrate by chemical vapor deposition.